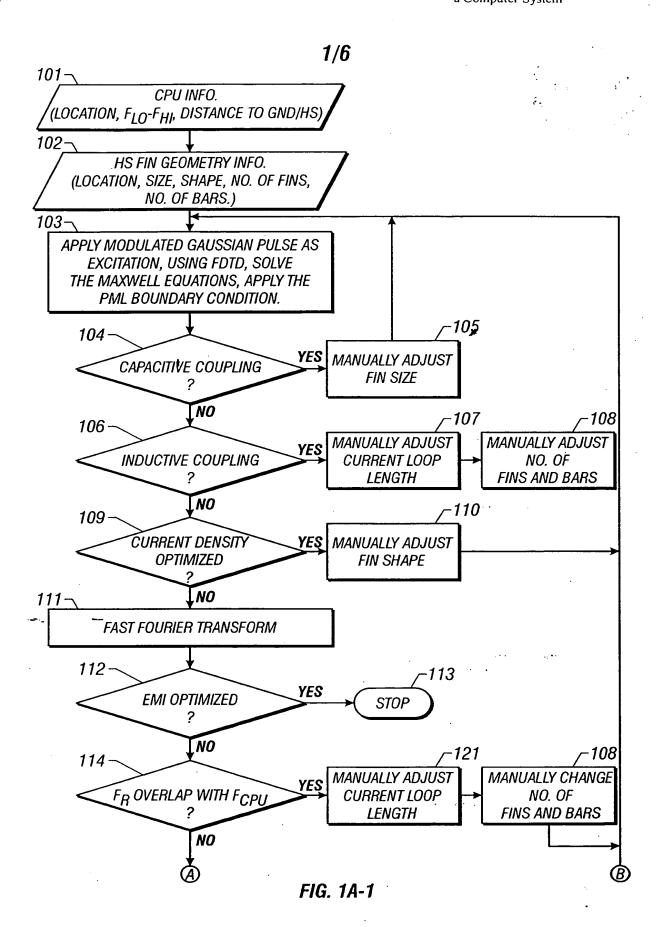
Attorney Docket No.: M-9699 US First Inventor: A Zhang

Title: Calculation of Radiation Emitted by a Computer System

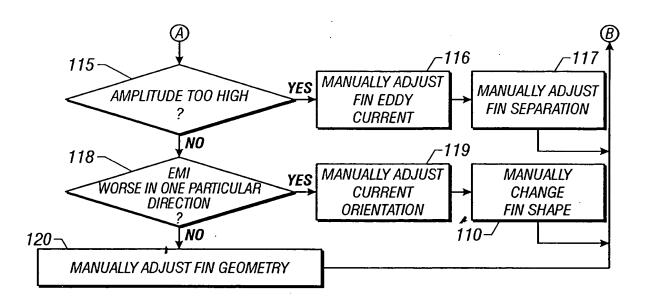


First Inventor: Lan Zhang

Title: Calculation of Radiation Emitted by

a Computer System.

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HS = HEATSINK

 $F_{LO}$ - $F_{HI}$  = FREQUENCY WINDOW RANGE

 $\ddot{F}$ , =RESONANCE FREQUENCY OF THE HEATSINK

PML = PERFECT MATCHED LAYER

FDTD =FINITE DIFFERENCE IN TIME DOMAIN

GND = GROUND

FFT = FAST FOURIER TRANSFORM

FIG. 1A-2

First Inventor: Lan Zhang Title: Calculation of Radiation Emitted by a Computer System 3/6 101-CPU INFO. (LOCATION, F<sub>LO</sub>-F<sub>HI</sub>, DISTANCE TO GND/HS) 102-HS FIN GEOMETRY INFO. (LOCATION, SIZE, SHAPE, NO. OF FINS, NO. OF BARS.) 103-APPLY MODULATED GAUSSIAN PULSE AS EXCITATION, USING FDTD, SOLVE THE MAXWELL EQUATIONS, APPLY THE PML BOUNDARY CONDITION. 111-FAST FOURIER TRANSFORM 112-113 YES EMI ACCEPTABLE **STOP** NO -121 108 114-MANUALLY CHANGE MANUALLY ADJUST YES F<sub>B</sub> OVERLAP WITH F<sub>CPU</sub> **CURRENT LOOP** NO. OF FINS AND BARS **LENGTH** .NO -116 115-MANUALLY ADJUST YES MANUALLY ADJUST AMPLITUDE TOO HIGH FIN EDDY FIN SEPARATION **CURRENT** 119 117 NO 118 **EMI** MANUALLY ADJUST MANUALLY YES WORSE IN ONE PARTICULAR **CURRENT CHANGE** DIRECTION FIN SHAPE ORIENTATION 110-NO 120-MANUALLY ADJUST FIN GEOMETRY HS = HEATSINKFLO-FHI = FREQUENCY WINDOW RANGE =RESONANCE FREQUENCY OF THE HEATSINK F, =RESONANCE FREQUENCY ( PML =PERFECT MATCHED LAYER FIG. 1B FDTD =FINITE DIFFERENCE IN TIME DOMAIN GND = GROUNDFFT = FAST FOURIER TRANSFORM

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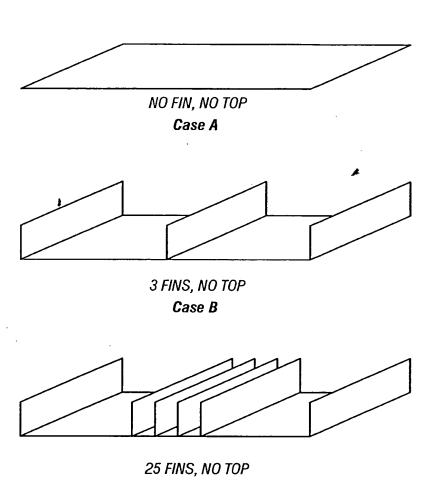
Attorney Docket No.: M-9699 US

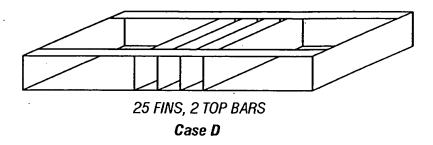
First Inventor: Lan Zhang

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Case C

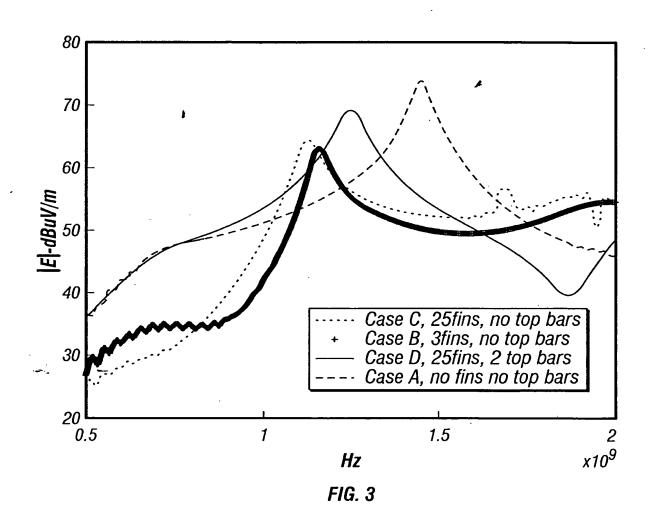
FIG. 2

First Inventor: Lan Zhang

Title: Calculation of Radiation Emitted by

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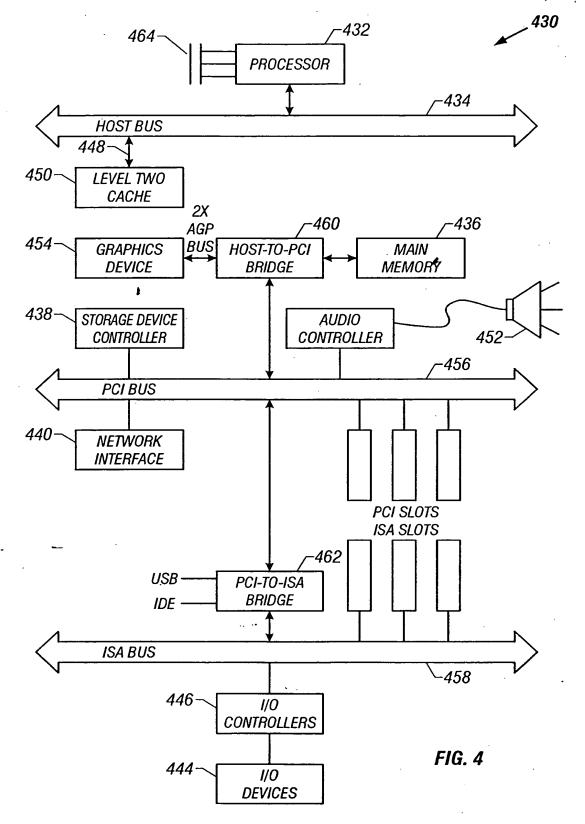


First Inventor: Lan Zhang

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